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Serial No.: 09/715,576
Filed: November 17, 2000
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REMARKS

Applicants' Terminal Disclaimer Removes the Double Patenting Rejection

Paragraphs 1 and 2 of the Office Action reject the independent claims under the judicially created doctrine of obviousness-type double patenting in light of U.S. Patent 6,217,662. The Office suggests submitting a terminal disclaimer to overcome this rejection. Accordingly, a terminal disclaimer as suggested by the Office is submitted concurrently herewith.

The Office's § 102(b) Rejection Should be Withdrawn Because the Cited References Fail to Disclose All of the Elements Recited in the Independent Claims

As the Office is well aware, a reference must discuss all elements of a claimed invention to anticipate that invention. Claims 1 and 21 recite a two portion susceptor formed from graphite coated with silicon carbide. Neither U.S. Patent 4,848,272 to Ohmura et al ("Ohmura") nor U.S. Patent 4,579,080 to Martin et al ("Martin") discuss such a susceptor (as noted by the Office through the absence of Claims 8, 9, and 28 in Paragraphs 4 and 5). Accordingly, the Office's § 102(b) rejection should be withdrawn.

The Claims That Are the Subject of the Office's § 103 Rejections Have Been Canceled

Claims 6, 23, 25, 44, and 47 have been canceled. Accordingly, the Office's obviousness rejections contained in Paragraphs 7 and 8 are moot.

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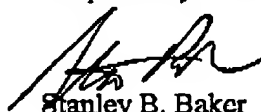
Summary of Amendments

The language added to Claims 1 and 21 regarding susceptors formed from graphite coated with silicon carbide was originally located in Claims 8, 9, 27, and 28. The amendments to the specification parallel amendments made in the parent case which is now U.S. Patent 6,217,662.

CONCLUSION

The above amendments and comments successfully traverse the rejections of record. Accordingly, Applicants respectfully request that the claims proceed to allowance forthwith.

Respectfully submitted,



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CERTIFICATE OF TRANSMISSION BY FACSIMILE

I hereby certify that this correspondence is being transmitted to the United States Patent and Trademark Office on October 24, 2002, by facsimile transmission to telephone number 703-872-9310.


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Marked-Up Amendments as Required By 37 CFR 1.121(b)

In the Specification:

Please delete the paragraph beginning at page 10, line 3 of the Specification and replace it with the following paragraph.

In the embodiment illustrated in Figure 6, the susceptor 50 includes a plurality of wafer pockets 52 on the inner circumference of the cylinder. Thus, when the susceptor 50 is heated, the facing walls radiantly heat the front of the wafers while the susceptor heats the rear. In other words, the facing walls directly (i.e., actively or non-passively) heat one another in response to exposure to electromagnetic radiation. As Figure 6 illustrates, in this embodiment, the sidewalls 51 preferably define an inverted truncated cone with a relatively shallow slope as compared to a true cylinder. As noted earlier, the shallow slope in the sidewalls 51 makes it somewhat easier to retain the wafers in the pockets 52 during chemical vapor deposition, and also helps provide proper flow pattern for the CVD gases.

Please delete the paragraph beginning at page 10, line 23 of the Specification and replace it with the following paragraph.

A second cylinder broadly designated at 57 surrounds the first cylinder 54 and defines an annular space A between the first and second cylinders. The second cylinder 57 is likewise made of a material that is thermally responsive to the selected frequencies of electromagnetic radiation, and the annular space between the first and second cylinders (54, 57) is sufficiently large to permit the flow of gases therebetween for epitaxial growth on substrates in the wafer

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pockets 56, while small enough for the second cylinder 57 to heat the exposed face of substrates to substantially the same temperature as the first cylinder 54 heats the faces of substrates that are in direct contact with the first cylinder (i.e., the second cylinder directly or actively heats the substrate and first cylinder in response to electromagnetic radiation).

In the Claims:

Please cancel Claims 4 – 9; 23; 25 – 28 and 42 – 48.

Please amend Claim 1 as follows:

1. (Amended) A susceptor for minimizing or eliminating thermal gradients that affect a substrate wafer during epitaxial growth, said susceptor comprising:
 - a first susceptor portion formed from graphite coated with silicon carbide and including a surface for receiving a semiconductor substrate wafer thereon; and
 - a second susceptor portion formed from graphite coated with silicon carbide, said second susceptor portion facing said substrate-receiving surface and spaced from said substrate-receiving surface, said spacing being sufficiently large to permit the flow of gases therebetween for epitaxial growth on a substrate on said surface, while small enough for said second susceptor to heat the exposed face of a substrate to substantially the same temperature as said first susceptor portion heats the face of a substrate that is in direct contact with said substrate-receiving surface.

Please amend Claim 21 as follows:

21. (Amended) A chemical vapor deposition system comprising:

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a reactor vessel formed of a material substantially transparent to electromagnetic radiation;

a gas supply system in fluid communication with said reactor vessel;

a source of electromagnetic radiation external to said reaction vessel; and

a susceptor within said reaction vessel, and formed of a material that is thermally responsive to electromagnetic radiation, said susceptor comprising,

a first susceptor portion formed from graphite coated with silicon carbide and including a surface for receiving a semiconductor substrate wafer thereon; and

a second susceptor portion formed from graphite coated with silicon carbide, said second susceptor portion facing said substrate-receiving surface and spaced from said substrate-receiving surface, said spacing being sufficiently large to permit the flow of gases therebetween for epitaxial growth on a substrate on said surface, while small enough for said second susceptor to heat the exposed face of a substrate to substantially the same temperature as said first susceptor portion heats the face of a substrate that is in direct contact with said substrate-receiving surface.